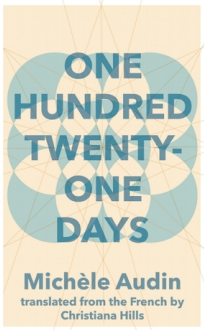
One Hundred Twenty-One Days, *Michèle Audin*, Deep Vellum, (2016) ISBN 978-1-9419-2022-0 (pbk), 14.95 USD, 978-1-9419-2023-7 (ebk), 200 p. translated by Christiana Hills from **Cent vingt et un jours**, Gallimard, ISBN 978-2-0701-4426-6, 2014.



Michèle Audin 2016

Michèle Audin is a mathematician working in the field of symplectic geometry at IRMA (l'Institut de recherche mathématique avancée) in Strasbourg. She is the author of several books on mathematics and mathematical history books. Since in 2013 she wrote a novel *Une vie brève* in which she tells the story of her father Maurice Audin (also a mathematician who, as an activist, was tortured and killed in 1957 by the French in the battle of Algeria) she has chosen a more literary career. She became since 2009 a member of Oulipo (**Ou**vroir de **li**ttérature **po**tentielle), a movement of writers and mathematicians who self-impose patterns and structures to produce their literature. For example Georges Perec wrote *La disparition* (1969), a book in which the letter e does not appear, or *Cent mille milliards de poèmes* (1961) by Raymond Queneau which allows the reader to combinatorially compose his or her poem.

In 2014 she wrote *Cent vingt et un jours*, her first true novel (that is only now translated into English). Since then she published also *Mademoiselle Haas* and *La formule de Stokes* both in 2016.

What are the 121 days about? It is about generations of mathematicians, their friends and relatives, several of them Jews, who live through the atrocities of two world wars.

If you wanted to write a biography about people who really have existed, you would probably start by collecting the appropriate documentation: letters, diaries, snippets from newspapers, history books, pictures, etc. Although this book is about fictional characters, Audin does exactly that: she 'invents' all these data about her protagonists and collects them in different chapters. The pictures are not included but she gives descriptions of what is to be seen on them. Once all the material is collected, that is where an author would normally start writing the story. But that is where Audin stops, since the reader has been given all the instruments and data available and hence this reader has already the complete story in his or her head. There is no point in telling it anymore. Every chapter is of a totally different type, one is a collection of newspaper clippings, another one has diary extracts, or portions from a psychiatric report, or an historian goes through his files and notes, or he describes a walk through Paris, etc. So there is a completely different style for every chapter which is Audin's oulipian constraint for this book. The book has a cyclic structure. The style of the first chapter is a fairy tale, and the first sentence "Once upon a time, in a remote region of a faraway land, there lived a little boy" is also the last one. Indeed when the historian has collected all his material, that is when he should start writing the book.

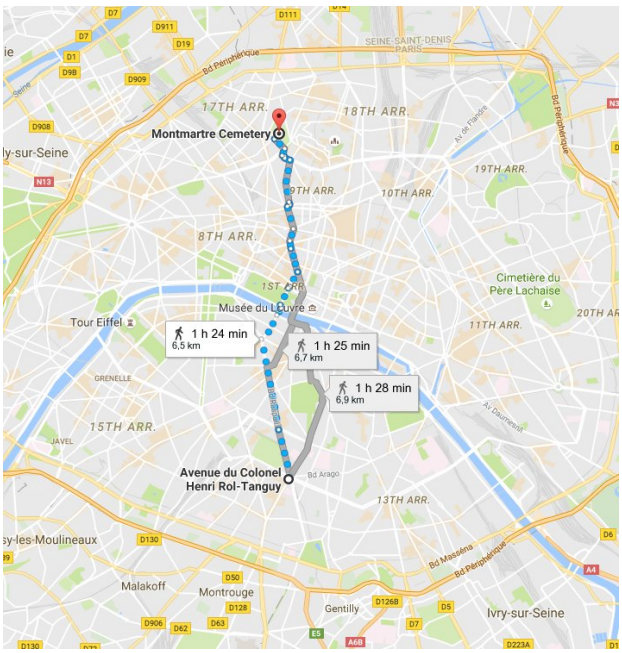
Since the reader is presented the raw material and has to construct the coherent story for herself, it is not always that easy to keep track of all the characters and the events. It might help to briefly sketch the situation.

The 'little boy' in the first chapter lives in Africa and is sent to Europe to study mathematics but he becomes wounded in the first WW so that he has to wear a black leather mask (an evil Darth Vader may come to your mind). His name is Christian Mortsauf (Audin uses many variations for this name or just abbreviates it to M.). The second chapter contains diary fragments of Marguerite Janvier, a nurse in a war hospital who is taking care of Christian and who will later become his wife. She also has to nurse Robert Gorenstein who has a head injury. In a third chapter journal clippings tell us among other things that Gorenstein shortly after the war murdered his family and is locked away in an asylum where he continues doing mathematics. Next is an interview in which Pierre Meyer tells about his brilliant classmate André Silberberg in Strasbourg who solved the important mathematical Gorenstein problem just before WWII. His result is presented by Mortsauf to the Académie. Silberberg is a young rebel and

himself being a Jew, revolts against the antisemitism of those days and collides with Heinrich Kürz, a Nazi mathematician. Kürz's journal notes of 1942 form the next chapter. We learn that his friend Mortsauf became a collaborator. Some photographs bring us through WWII and then comes the main chapter called 121 days in which the war ends and Mireille Duvivier, Gorenstein's niece, goes looking for her lover André Silberberg. Unfortunately he did not survive the Auschwitz death march like so many others. Three more chapters follow: one is an enumeration of numbers and their universal or mathematical meaning or more especially the meaning they get in the context of this story. We find pi, and Gorenstein's constant, or 28, a perfect number, or the imaginary part of the first zero of the zeta function, but also 7 kilometers, the distance between Monowitz and the main camp of Auschwitz and 67 kilometers, the length of the Auschwitz death march, or 31, the age at which André died in Mariahilf, 1926, the year that Vito Volterra invented the predator-prey systems, etc. Numbers coldly measure data and yet they can be heavily loaded emotionally. Next follows an inventory of the material and notes that are collected by 'the historian' in the period 2006-2010 who wants to write a biography of Mortsauf (but one of the heirs does no give permission to publish the letters), hence the material is left 'unused' as it is in this novel. In a walk through Paris, the historian leaves the cemetery of Montmartre where Pierre Meyer has just been buried (2013) and gives us a guided tour until he arrives at the Place du colonel-Rol-Tanguy. (This colonel and general Leclerc were the military that accepted the German surrender when Paris was liberated on 24 August 1944).

The last chapter is not numbered but is called a 'supernumeracy chapter'. Here Audin assures us that this is fiction and all resemblance with real persons, living or dead is purely coincidental. Then follows a long list of books where she found her inspiration, the books that have been mentioned or cited, and all the geographic places that were mentioned at some point. Finally there is a long name-index of all the fictitious and real persons that were used.

Rol-Tanguy and Leclerc (1944)



The climax of the novel lies in the '121 days' chapter. It refers to the period when Mireille has first seen André Silberberg (23 February 1943) till when André was arrested as a member of the Resistance (24 June 1943), 121 days of love and happiness. Audin shows how history is born. She starts from the original facts told by people who experienced and lived through the facts. Facts that leave their echoes in newspapers, letters, diaries, and medical reports. These are picked up later by historians who are hindered by limited resources, misinterpretations, and manipulations. Does Audin suggest that love is the true material that survives all the atrocities of war, even if there is not always a happy ending. Perhaps, not the facts and numbers is what should be remembered but the sentiments of people. The number 121 surmounts the 120 days of de Sade's Sodom. 121 is the square of 11, and 11 is is the juxtaposition of two individual units, two people forming an indivisible prime number. Would that be a message?

So there is no mathematics in this book (except for the 'numbers') or is there? But the central characters are mathematicians, probably because that is the world that Audin knows best.

Adhemar Bultheel